Remarks

In the Office Action of November 16, 2004, the Examiner objected to the disclosure due to an informality and rejected claims 1-21 based on the disclosures of a number of U.S. Patents. More specifically, the Examiner rejected claims 1-4 and 14-17 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,697,873 to Yik et al. ("Yik"); rejected claims 5-9, 12-13, and 19-21 under 35 U.S.C. § 103(a) over Yik in view of U.S. Patent No. 6,810,037 to Kalapathy et al. ("Kalapathy"); rejected claim 10 under 35 U.S.C. § 103(a) over Yik and Kalapathy and further in view of U.S. Patent No. 6,732,184 to Merchant et al. ("Merchant"); rejected claim 11 under 35 U.S.C. § 103(a) over Yik and Kalapathy and further in view of U.S. Patent Application Publication No. 2003/0026259 to Brown ; and rejected claim 18 under 35 U.S.C. § 103(a) over Yik.

By this Amendment, Applicants have amended the specification to supply the serial number and filing date of the application mentioned in paragraph [0003] and amended paragraph 78 to correct the typographical error noted by the Examiner. In view of the amendment to paragraph 78, the objection to the specification is obviated. Additionally, Applicants have amended claim 14 to include certain of the features previously recited in claim 18, which depended from claim 14, and canceled claim 18 without prejudice or disclaimer. Furthermore, Applicants have amended claim 1 to correct a minor typographical error. No new matter has been added by way of the present amendment.

Claims 1-4 and 14-17 stand rejected under 35 U.S.C. § 102(e) based on Yik. A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. For the following reasons, Applicants submit that Yik does not disclose every feature of these claims, and accordingly, Applicants respectfully traverse this rejection.

Yik is directed to a high speed MAC address search engine. (Yik, Title). Yik discloses the use of two MAC address tables, such as primary MAC address table 220a and secondary MAC address table 220b. (Yik, Fig. 3). According to Yik, primary MAC address table 220a is populated with "primary records" and secondary MAC address table 220b is populated with "secondary records." (See Yik, Fig. 3 and column 5, column 6, lines 21-51).

Claim 1 is directed to a multiport switch that comprises a plurality of elements, including a plurality of receive ports, a plurality of transmit ports, the transmit ports configured to transmit the frames in the packet-switched network, and an internal rules checking circuit. The internal rules checking circuit is coupled to the receive ports and is configured to determine frame forwarding information for the received frames. The internal rules checking circuit includes a plurality of address lookup tables, each of the address lookup tables including a plurality of addressable table entries for storing information relating to the frames and each of the addressable table entries including at least a vector field that identifies ports corresponding to the frames of the addressable table entries and an address field that identifies network addresses of the frames. Further, the internal rules checking circuit is configured to write to the addressable entries of

the plurality of address lookup tables such that multiple entries having the same address in the address tables are alternately written to different ones of the plurality of address lookup tables.

Yik does not disclose each of the features recited in claim 1. For instance, Yik does not disclose an internal rules checking circuit configured to write to addressable entries of a plurality of address lookup tables <u>such that multiple entries having the same address in the address tables are alternately written to different ones of the plurality of address lookup tables</u>. As mentioned, Yik uses a primary address table 220a to store "primary records" and a secondary address table 220b to store "secondary records." Entries into tables 220a and 220b of Yik are not <u>alternately written to different ones</u> of tables 220a and 220b. Instead, Yik explicitly discloses storing primary index records to a primary address table 220a and secondary index records to a secondary address table 220b. (Yik, column 5, lines 20-47). This concept is clearly illustrated in Figs. 3 and 4 and the corresponding disclosure of Yik (column 6, lines 20 – 65), which describes, for instance, a primary record 305a that is stored in primary address table 220a and its corresponding secondary records 330a, 330b, and 330c, which are stored in secondary address table 220b.

In rejecting claim 1, the Examiner points to column 5, lines 40-47 of Yik as allegedly disclosing an internal rules checking circuit configured to write to the addressable entries of the plurality of address lookup tables such that multiple entries having the same address in the address tables are alternately written to different ones of the plurality of address lookup tables, as recited in claim 1. This section of Yik discloses:

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> Each primary record 305 can be linked to a corresponding
> secondary record 330 in the secondary MAC address table 220b. If
> linked, a primary record 305 is preferably linked to a chain of one or
> more secondary records 330 that store MAC addresses of the
> same hash family as is stored in the primary record 305. Thus,
> MAC addresses of the same hash family are stored within the same
> hash family chain of linked primary and secondary records 305,
> 330.

This section of Yik relates to the relationships between the primary records and

secondary records. More particularly, this section of Yik states that a primary

record (which is stored in primary address table 220a) can be linked to a chain of

secondary records (which are stored in secondary address table 220b). This

section of Yik does not disclose or suggest a plurality of address lookup tables

that are written such that multiple entries having the same address in the address

tables are alternately written to different ones of the plurality of address lookup

tables, as recited in claim 1.

For at least these reasons, Applicants submit that Yik does not disclose or

suggest each feature recited in claim 1. Accordingly, the rejection of claim 1 is

improper and should be withdrawn. The rejections of claims 2-4 based on Yik

should also be withdrawn, at least by virtue of the dependency of these claims

from claim 1.

Independent claim 14 and dependent claims 15-17 were also rejected

under 35 U.S.C. § 102(e) based on Yik. Independent claim 14, as amended,

now includes features related to those previously recited in claim 18. Claim 18

was rejected by the Examiner under 35 U.S.C. § 103(a) based on Yik.

Claim 14, as amended, is directed to a method of storing information in a

lookup table implemented as first and second sub-tables. The method includes

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calculating a first row address at which the information is to be stored and determining to store the information in the first sub-table when a previous entry at the first row address was stored in the second sub-table and determining to store the information in the second sub-table when the previous entry at the first row address was stored in the first sub-table. The method further includes storing the information in the determined sub-table in the first available entry at the first row address as a table entry.

In rejecting claim 18 (certain features of which have been incorporated into claim 14), the Examiner concedes that Yik does not disclose "that the information should be stored in the first sub-table when the previous table entry at the calculated first row address was stored in the second sub-table," but contends that it would have been obvious to modify Yik to include this feature "in order to maintain relatively balanced address tables." (Office Action, page 9). Applicants respectfully disagree with the Examiner's conclusion of obviousness. As mentioned above, Yik expicitly discloses a technique for populating primary and secondary address tables. The technique disclosed by Yik appears to populate the primary address table with the first (primary) record in a hash family and to then populate the secondary address table with the subsequent (secondary) records in the hash family. This disclosure of Yik in no way discloses or suggests determining to store information in a first sub-table when a previous entry at the first row address was stored in the second sub-table and determining to store information in the second sub-table when the previous entry at the first row address was stored in the first sub-table, as recited in claim 14.

Further, Applicants submit that the Examiner's given motivation for

modifying Yik ("in order to maintain relatively balanced address tables") does not make sense in view of the address tables disclosed by Yik. That is, the primary and secondary address tables of Yik are specifically disclosed as being unbalanced. For instance, Yik discloses: "The primary MAC address table is preferably stored in a memory that is external to the switch 115. . . . The secondary MAC address table 220b is preferably located in memory that is internal to the switch 115. The secondary MAC address table 220b is preferably also smaller in size than the primary MAC address table 220a." (Yik, column 5, lines 61 - 63 and column 6, lines 14 - 17).

For at least these reasons, Applicants submit that Yik does not disclose or suggest each feature of claim 14, and the rejection of this claim should therefore be withdrawn. The rejections of claims 15-17, at least by virtue of their dependency on claim 14, should also be withdrawn.

Claims 5-9, 12-13, and 19-21 stand rejected under 35 U.S.C. § 103(a) in view of Yik and Kalapathy. The Examiner concedes that "Yik fails to teach first and second search circuits that simultaneously search for an entry in the first and second address lookup tables." (Office Action, page 5). The Examiner, however, contends that Kalapathy discloses the claimed features that are lacking from Yik.

Regarding dependent claim 5, Applicants have reviewed Kalapathy and submit that Kalapathy fails to cure the previously discussed deficiencies of Yik, as recited in claim 1. Accordingly, the rejection of claim 5 and its dependent claim 6 based on Yik and Kalapathy should be withdrawn.

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Independent claim 7 is directed to a method of using a lookup table implemented with a first lookup sub-table and a second lookup sub-table. The method includes calculating a row address of the lookup table based on a hash value of a network address associated with an entry in the lookup table and storing the entry in one of the first sub-table and the second sub-table at the calculated row address by alternately storing multiple entries having identical calculated row addresses in the first and second sub-tables. The method further includes accessing the entries stored in the lookup table by simultaneously reading entries stored at a desired address in the first and second sub-tables.

Neither Yik nor Kalapath, either alone or in combination, disclose or suggest the features recited in claim 7. For example, neither Yik nor Kalapathy disclose or suggest, as recited in claim 7, "storing the entry in one of the first sub-table and the second sub-table at the calculated row address by alternately storing multiple entries having identical calculated row addresses in the first and second sub-tables." The Examiner points to column 5, lines 21-25 and 40-47 of Yik as disclosing this feature of claim 7. These sections of Yik were discussed previously. As mentioned, Yik does not disclose or suggest "alternately storing multiple entries . . . in the first and second sub-tables." Applicants submit that Kalapathy does not cure the deficiencies of Yik.

For at least these reasons, the rejection of claim 7 based on Yik and Kalapathy should be withdrawn. The rejection of claims 8, 9, 12, and 13 based on Yik and Kalapathy should also be withdrawn, at least by virtue of the dependency of these claims on claim 7.

Independent claim 19 and its dependent claims 20 and 21 also stand rejected based on Yik and Kalapathy. Claim 19 is directed to a multiport switch that comprises, among other things, "a logic device configured to alternately write addressable table entries for a particular table address to the plurality of address tables." Based on rationale similar to that given above, Applicants submit that neither Yik nor Kalapathy, either alone or in combination, disclose or suggest the features of this claim. Accordingly, the rejection of claim 19, as well as the rejections of dependent claims 20 and 21 are improper and should be withdrawn.

Dependent claim 10 stands rejected under 35 U.S.C. § 103(a) based on Yik, Kalapathy, and Merchant. Applicants submit that Merchant does not disclose or suggest the deficiencies of Yik and Kalapathy, as previously discussed, with regard to claims 7 and 8, from which claim 10 depends. Accordingly, the rejection of claim 10 should be withdrawn.

Dependent claim 11 stands rejected under 35 U.S.C. § 103(a) based on Yik, Kalapathy, and Brown. Applicants have reviewed Brown, and submit that Brown does not cure the above mentioned deficiencies of Yik and Kalapathy. Accordingly, the rejection of claim 11 should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully request withdrawal of the outstanding rejections and the timely allowance of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to

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Deposit Account 50-1070 and please credit any excess fees to such deposit

account.

Respectfully submitted,

HARRITY & SNYDER, L.L.P.
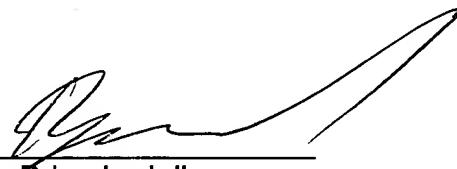
By: _____
Brian Ledell
Reg. No. 42,784

Date: Feb 18, 2005
11240 Waples Mill Road
Suite 300
Fairfax, VA 22030
Telephone: (571) 432-0800
Facsimile: (571) 432-0808